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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/645,562

08/22/2003

Eiichi Kurokawa

2635-168

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23117

7590

01/13/2005

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EXAMINER

WALLING, MEAGAN S

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/645,562

Applicant(s)

KUROKAWA ET AL.

Examiner

Meagan S Walling

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 10 is/are rejected.
- 7) ☒ Claim(s) 2,4-9 and 11-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/22/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al. (US 5,558,752).

Regarding claim 1, Wang et al. teaches a gas sensor abnormality detecting device made to detect the presence or absence of abnormality of a gas sensor having a cell in which a pair of electrodes (Ref. 16 and 18) are formed on a solid electrolyte material (Ref. 14) to output a signal corresponding to a composition of a measured gas on surfaces of said electrodes through a signal line connected to said electrodes, said device comprising: signal inputting means for temporarily inputting a test signal including an alternating-current component through said signal line to said cell undergoing abnormality detection (column 2, lines 19-21 and 31); response signal detecting means for detecting a response signal developing in said signal line in response to the inputting of said test signal (column 2, lines 23-25); and decision means for comparing a detection value of said response signal with a prescribed value and, if said detection value resides in one of regions defined by said prescribed value, making a decision that a disconnection abnormality occurs in said cell undergoing the abnormality detection (column 2, lines 25-30).

Regarding claim 3, Wang et al. teaches a gas sensor abnormality detecting device made to detect the presence or absence of abnormality of a gas sensor composed of a plurality of cells

Art Unit: 2863

each having a pair of electrodes (Ref. 16, 18, 20, 22) formed on a solid electrolyte material (Ref. 12, 14) to output a gas detection signal corresponding to a composition of a measured gas at surfaces of said electrodes through a signal line connected to the electrodes and made such that one electrodes of said pairs of electrodes of said plurality of cells are placed to confront a common chamber (Ref. 28), said device comprising: test signal inputting means for temporarily inputting a test signal including an alternating-current component through the signal lines to a specified cell of said plurality of cells (column 2, lines 19-21 and 31); response signal detecting means for, in response to the inputting of said test signal, detecting a response signal developing in said signal line for a cell, undergoing abnormality detection, other than said specified cell (column 2, lines 23-25); and decision means for comparing a detection value of said response signal with a prescribed value and, if said detection value resides in preset one of regions defined by said prescribed value, making a decision that a disconnection abnormality occurs in said cell undergoing the abnormality detection (column 2, lines 25-30).

2. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Warburton (US 6,096,186).

Regarding claim 10, Warburton teaches a gas sensor abnormality detecting device made to detect the presence or absence of abnormality of a gas sensor composed of a cell having a pair of electrodes (Ref. 12 and 14) formed on a solid electrolyte material (column 5, line 23) to output a gas detection signal corresponding to a composition of a measured gas on surfaces of said electrodes through a signal line connected to said electrodes, said device comprising: test signal inputting means for temporarily inputting a test signal including an alternating-current

Art Unit: 2863

component through said signal line with respect to a cell undergoing abnormality detection (column 4, lines 36-37); response signal detecting means for, in response to the inputting of said test signal, detecting a response signal developing in said signal line (column 4, lines 37-39); impedance calculating means for obtaining an impedance between said electrodes on the basis of said test signal and said response signal (column 4, lines 51-54); and decision means for comparing the obtained impedance value with a prescribed value and, if the obtained impedance value exceeds said prescribed value, making a decision that a disconnection abnormality occurs in said undergoing abnormality detection (column 4, lines 54-56).

Allowable Subject Matter

3. Claims 2, 4-9 and 11-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of allowability of claim 2 is the inclusion of the limitation that, for the detection of said response signal, a predetermined time delay is set with respect to said test signal. It is this limitation that has not been found, taught, or suggested in the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 4 is the inclusion of the limitation of second response signal detecting means for, in response to said test signal with respect to said specified cell, detecting a response signal developing in a signal line for said specified cell; and second decision means for comparing a detection value of said response signal

Art Unit: 2863

with a prescribed value to, if the detection value resides in preset one of the regions defined by said prescribed value, make a decision that a disconnection abnormality occurs in said specified cell. It is this limitation that has not been found, taught, or suggested in the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 6 is the inclusion of the limitation of temperature state detecting means for detecting a temperature state of said solid electrolyte material; and inhibiting means for inhibiting the abnormality decision processing in said decision means until said temperature state reaches a predetermined temperature region of said solid electrolyte material. It is this limitation that has not been found, taught, or suggested in the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 8 is the inclusion of the limitation that said test signal inputting means inputs a temporary voltage variation as said test signal to said signal line, and said response signal detecting means detects a variation of a current flowing through said signal line as said response signal, and said decision means sets, as said one region, a smaller region than said prescribed value and, when said detection value falls below said prescribed value, makes a decision that a disconnection abnormality occurs in said cell undergoing the abnormality detection. It is this limitation that has not been found, taught, or suggested in the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 9 is the inclusion of the limitation that said test signal inputting means inputs a temporary current variation as said test signal to said signal line, and said response signal detecting means detects a variation of a voltage in said signal line as said response signal, and said decision means sets, as the one

Art Unit: 2863

region, a larger region than said prescribed value and, when said detection value exceeds said prescribed value, makes a decision that a disconnection abnormality occurs in said cell undergoing the abnormality detection. It is this limitation that has not been found, taught, or suggested in the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 11 is the inclusion of the limitation of temperature state detecting means for detecting a temperature state of said solid electrolyte material; and inhibiting means for inhibiting the abnormality decision processing in said decision means until said temperature state reaches a predetermined temperature region of said solid electrolyte material. It is this limitation that has not been found, taught, or suggested in the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 14 is the inclusion of the limitation that said test signal inputting means constitutes a power supply of said cell and temporarily inputs one of a voltage variation and a current variation to said signal line, and said response signal detecting means detects one of a variation of a current flowing through said signal line and a variation of a voltage between said electrodes as said response signal. It is this limitation that has not been found, taught, or suggested in the prior art of record that makes these claims allowable.

Conclusion

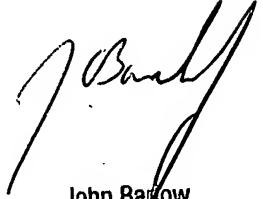
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meagan S Walling whose telephone number is (571) 272-2283. The examiner can normally be reached on Monday through Friday 8:30 AM to 5 PM.

Art Unit: 2863

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

msw



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